

IN THE CLAIMS:

Please amend the claims as follows:

1-70 (Cancelled)

71. (New) A computer-readable memory medium that stores program instructions for creating a prototype for performing a machine vision process to solve a machine vision problem, wherein the program instructions are computer executable to perform:

displaying information indicating a plurality of machine vision problems;

receiving user input selecting a machine vision problem from the plurality of machine vision problems; and

automatically creating a prototype in response to the selected machine vision problem, wherein the prototype comprises information specifying a sequence of functions, wherein the information specifying the sequence of functions is useable by a prototyping environment to invoke the sequence of functions to perform a machine vision process that solves the selected machine vision problem, wherein said automatically creating is performed without direct user input selecting the functions.

72. (New) The memory medium of claim 71, wherein the prototype is not an executable program.

73. (New) The memory medium of claim 71, wherein the plurality of machine vision problems comprise one or more machine vision problems associated with at least one of the categories from the group consisting of:

image processing, image analysis, industrial automation, test and measurement, and robotics.

74. (New) The memory medium of claim 71, wherein said displaying information indicating a plurality of machine vision problems comprises displaying the

plurality of machine vision problems categorized by one or more of color, shape, and pattern.

75. (New) The memory medium of claim 71, wherein the machine vision process comprises one or more image processing functions, comprising one or more of:

one or more filtering functions for smoothing, edge detection, and/or convolution;

one or more morphology functions for modifying the shape of objects in an image, including erosion, dilation, opening, and/or closing;

one or more thresholding functions for selecting and/or converting ranges of pixel values in images; and

one or more particle filtering functions to filter objects based on shape measurements.

76. (New) The memory medium of claim 71, wherein the machine vision process comprises one or more image analysis functions, comprising one or more of:

a histogram function that counts and graphs a total number of pixels in each grayscale value;

a line profile function that returns grayscale values of pixels along a line drawn through an image with a line tool and graphs the values;

one or more particle analysis functions that computes measurements on objects in an image; and

a 3D view function that displays an image using an isometric view in which each pixel from an image source is represented as a column of pixels in a 3D view, wherein the pixel value corresponds to an altitude of the column of pixels.

77. (New) The memory medium of claim 71, wherein the machine vision process comprises one or more machine vision functions, comprising one or more of:

an edge detection function that finds edges along a line drawn through an image with a line tool;

a blob analysis function;

a pattern matching function that locates regions of a grayscale image that match a predetermined template;

a shape matching function that searches for the presence of a shape in an image and specifies the location of each matching shape;

a caliper function that computes measurements, including distances, areas, and/or angles, based on results returned from other image processing functions; and

a color matching function that quantifies which colors and how much of each color exist in a region of an image and uses this information to determine if another image contains the same colors in a substantially equal ratio.

78. (New) The memory medium of claim 71,

wherein the information specifying the sequence of functions comprises a plurality of elements respectively specifying the sequence of functions.

79. (New) The memory medium of claim 78, wherein said automatically creating the prototype comprises using previously stored information specifying the elements to include in the prototype.

80. (New) The memory medium of claim 78,

wherein each element included in the prototype is a step representing a function.

81. (New) The memory medium of claim 80, wherein an ordering is associated with the steps in the prototype, wherein the program instructions are further computer-executable to perform:

performing the functions in the order of their respective corresponding steps in order to perform the machine vision process that solves the machine vision problem.

82. (New) The memory medium of claim 78, wherein the program instructions are further computer-executable to perform:

receiving user input to customize the machine vision process that is performed;
and

modifying the prototype in response to the user input;
wherein said modifying the prototype comprises one or more of:
 modifying an element in the prototype;
 including another element in the prototype;
 removing an element from the prototype.

83. (New) The memory medium of claim 78, wherein the prototype comprises an object-oriented representation of the machine vision process, and wherein the elements comprise objects representing respective machine vision operations.

84. (New) The memory medium of claim 78, wherein the prototype comprises a diagrammatic representation of the machine vision process, and wherein the elements comprise diagrammatic objects representing respective machine vision operations.

85. (New) The memory medium of claim 71, further comprising:
 receiving information regarding an additional machine vision problem to indicate in the plurality of machine vision problems, wherein the information specifies a plurality of elements to include in a prototype in response to a user specifying the additional machine vision problem, and wherein the plurality of elements specify a second plurality of functions operable to perform a machine vision process that solves the additional machine vision problem; and

 displaying information indicating the additional machine vision problem along with the other machine vision problems in the plurality of machine vision problems.

86. (New) The memory medium of claim 85,
 wherein said receiving information regarding the additional machine vision problem comprises automatically receiving the information, without user input.

87. (New) The memory medium of claim 85, wherein said receiving information regarding the additional machine vision problem comprises:
 connecting to a computer server;

downloading the information from the computer server.

88. (New) The of memory medium claim 71, wherein said automatically creating includes selecting the prototype from a plurality of stored prototypes, wherein the selected prototype corresponds to the selected machine vision problem.

89. (New) The memory medium of claim 71, , wherein the program instructions are further computer-executable to perform:

displaying help information regarding the selected machine vision problem;

wherein the help information includes information explaining the machine vision process that is performed in order to solve the selected machine vision problem.

90. (New) The memory medium of claim 71, , wherein the program instructions are further computer-executable to perform:

programmatically generating a program executable to implement the machine vision process specified by the prototype.

91. (New) The memory medium of claim 90,
wherein the program is a graphical program.

92. (New) The memory medium of claim 71, further comprising:

programmatically generating a script, wherein the script is executable to generate a program implementing the machine vision process specified by the prototype.

93. (New) The memory medium of claim 71, wherein the plurality of machine vision problems comprises machine vision problems in at least one of the following fields:

automotive;

biomedical;

chemical;

electronics;

manufacturing; and
pharmaceuticals.

94. (New) A method for creating a prototype for performing a machine vision process to solve a machine vision problem, the method comprising:
displaying information indicating a plurality of machine vision problems;
receiving user input selecting a machine vision problem from the plurality of machine vision problems; and
automatically creating a prototype in response to the selected machine vision problem, wherein the prototype comprises information specifying a sequence of functions, wherein the information specifying the sequence of functions is useable by a prototyping environment to invoke the sequence of functions to perform a machine vision process that solves the selected machine vision problem, wherein said automatically creating is performed without direct user input selecting the functions.

95. (New) The method of claim 94, wherein the prototype is not an executable program.

96. (New) The method of claim 94, wherein the plurality of machine vision problems comprise one or more machine vision problems associated with at least one of the categories from the group consisting of:

image processing, image analysis, industrial automation, test and measurement, and robotics.

97. (New) The method of claim 94, wherein said displaying information indicating a plurality of machine vision problems comprises displaying the plurality of machine vision problems categorized by one or more of color, shape, and pattern.

98. (New) The method of claim 94, wherein the machine vision process comprises one or more image processing functions, comprising one or more of:

- one or more filtering functions for smoothing, edge detection, and/or convolution;
- one or more morphology functions for modifying the shape of objects in an image, including erosion, dilation, opening, and/or closing;
- one or more thresholding functions for selecting and/or converting ranges of pixel values in images; and
- one or more particle filtering functions to filter objects based on shape measurements.

99. (New) The method of claim 94, wherein the machine vision process comprises one or more image analysis functions, comprising one or more of:

- a histogram function that counts and graphs a total number of pixels in each grayscale value;

- a line profile function that returns grayscale values of pixels along a line drawn through an image with a line tool and graphs the values;

- one or more particle analysis functions that computes measurements on objects in an image; and

- a 3D view function that displays an image using an isometric view in which each pixel from an image source is represented as a column of pixels in a 3D view, wherein the pixel value corresponds to an altitude of the column of pixels.

100. (New) The method of claim 94, wherein the machine vision process comprises one or more machine vision functions, comprising one or more of:

- an edge detection function that finds edges along a line drawn through an image with a line tool;

- a blob analysis function;

- a pattern matching function that locates regions of a grayscale image that match a predetermined template;

- a shape matching function that searches for the presence of a shape in an image and specifies the location of each matching shape;

- a caliper function that computes measurements, including distances, areas, and/or angles, based on results returned from other image processing functions; and

a color matching function that quantifies which colors and how much of each color exist in a region of an image and uses this information to determine if another image contains the same colors in a substantially equal ratio.

101. (New) A system for creating a machine vision prototype for performing a machine vision process to solve a machine vision problem, the system comprising:

- a processor;

- a memory coupled to the processor;

- a machine vision prototyping environment application stored in the memory, wherein the machine vision prototyping environment application is operable to:

 - display information indicating a plurality of machine vision problems;

 - receive user input selecting a machine vision problem from the plurality of machine vision problems; and

 - automatically create a prototype in response to the selected machine vision problem, wherein the prototype comprises information specifying a sequence of functions, wherein the information specifying the sequence of functions is useable by a prototyping environment to invoke the sequence of functions to perform a machine vision process that solves the selected machine vision problem, wherein the prototype is automatically created without direct user input selecting the functions.

102. (New) A system for creating a machine vision prototype for performing a machine vision process to solve a machine vision problem, the system comprising:

- a client computer system, wherein the client computer system comprises:

 - a processor;

 - a memory coupled to the processor;

 - a machine vision prototyping environment application stored in the memory, wherein the machine vision prototyping environment application is operable to:

 - display information indicating a plurality of machine vision problems;

receive user input selecting a machine vision problem from the plurality of machine vision problems; and

select a first machine vision prototype from a plurality of possible machine vision prototypes, wherein the prototype comprises information specifying a sequence of functions, wherein the information specifying the sequence of functions is useable by a prototyping environment to invoke the sequence of functions to perform a machine vision process that solves the selected machine vision problem, wherein the prototype is automatically created without direct user input selecting the functions, wherein the first machine vision prototype implements a solution to the selected machine vision problem; and

a server computer system, wherein the server computer system stores a plurality of machine vision prototypes;

wherein the client computer system is operable to obtain machine vision prototypes from the server computer system.

103. (New) The system of claim 102,

wherein the server computer system is operable to receive and store machine vision prototypes from a plurality of client computer systems.

104. (New) A system for creating a machine vision prototype for performing a machine vision process to solve a machine vision problem, the system comprising:

means for displaying information indicating a plurality of machine vision problems;

means for receiving user input selecting a machine vision problem from the plurality of machine vision problems; and

means for automatically creating a prototype in response to the selected machine vision problem, wherein the prototype comprises information specifying a sequence of functions, wherein the information specifying the sequence of functions is useable by a prototyping environment to invoke the sequence of functions to perform a machine vision process that solves the selected machine vision problem, wherein said automatically creating is performed without direct user input selecting the functions.